RISER CRACKING OF COAL TO OIL AND GAS. Dennis A. Duncan, Justin Beeson, Donald Oberle, Institute of Gas Technology, 3424 South State Street, Chicago, Illinois 60616.

A four-year program is under way at IGT under ERDA/FE sponsorship to develop a practical hydrocarbonization or hydropyrolysis processing scheme based on an entrained-flow reactor similar to the Riser reactors used in refinery catalytic cracking. The reaction products are gasoline, gas, fuel oil and char.

Hydrogen and coal are reacted in entrained flow at pressures in the 1000 to 2000 psi range and at temperatures up to 1500°F. Such parameters as hydrogen concentration, hydrogen preheat temperature, coal particle size, reaction temperature history, residence time and the use of other carrier gases, will be explored to establish their effect on product yields and overall economics.

A bench-scale unit is being operated now to obtain engineering design parameters. A 100 pound per hour process development unit (PDU) will be designed, fabricated, and operated later in the program.